In the Claims

1. (Currently Amended) A cooling system comprising:

an engine crankshaft;

a water pump having at least one impeller; and

a variable drive ratio belt system coupled between said engine crankshaft and said water pump, said variable drive ratio belt system having a variable pitch crankshaft pulley coupled to said engine crankshaft, a variable pitch water pump pulley coupled to said water pump, and a drive belt coupled to said variable pitch crankshaft pulley and said variable pitch water pump pulley[.];

said variable pitch crankshaft pulley having a first crankshaft pulley half and a second crankshaft pulley half held together at a first distance by a crankshaft pulley spring;

said variable pitch water pump pulley having a first water pump pulley half and a second water pump pulley half held apart at a second distance by a water pump pulley spring;

said first crankshaft pulley half having a first inner sloping surface and said second crankshaft pulley half having a second inner sloping surface such that said drive belt rests upon a portion of said first inner sloping surface and said second inner sloping surface defined by said first distance;

said first water pump pulley half having a third inner sloping surface and said second water pump pulley half having a fourth inner sloping surface, wherein said drive belt rests upon a portion of said third inner sloping surface and said fourth inner sloping surface defined by said second distance;

wherein said first distance increases as a function of an increased engine rotational speed and decreases as a function of a decreased engine rotational speed; and

wherein said second distance decreases in response to said first distance increasing and increases in response to said first distance decreasing.

2. (Cancelled)

3. (Cancelled)

4. (Cancelled)

5. (Cancelled)

6. (Cancelled)

7. (Currently Amended) The cooling system of claim ~~6~~ 1, wherein the increase of said second distance decreases a water pump belt diameter of said drive belt.

8. (Currently Amended) The cooling system of claim ~~6~~ 1, wherein the decrease of said second distance increases a water pump belt diameter of said drive belt.

9. (Currently Amended) A method for preventing pump cavitation of a belt driven water pump having a plurality of impellers, said impellers rotating to pump coolant to an engine block, the method comprising:

coupling a variable pitch crankshaft pulley to an engine crankshaft,

coupling a variable pitch water pump pulley to the water pump; and

coupling a drive belt under tension to said variable pitch crankshaft pulley and to said variable pitch water pump pulley[.];

wherein coupling a drive belt comprises coupling a drive belt to a variable pitch crankshaft pulley such that said drive belt is coupled to a first inner sloping surface of each of a pair of crankshaft pulley halves separated by a first distance and coupling said drive belt at a desired tension to a variable pitch water pump pulley such that said drive belt is coupled a second inner sloping surface of a pair of water pump pulley halves separated by a second distance;

wherein each of said crankshaft pulley halves is maintained together at said first distance by a crankshaft spring; and each of said water pump pulley halves is forced apart at said second distance by a water pump pulley spring.

10. (Cancelled)

11. (Cancelled)

12. (Cancelled)

13. (Cancelled)

14. (Currently Amended) The method of claim ~~13~~ 9, wherein an increase in rotational speed of said drive belt causes said first distance to increase and said second distance to decrease while maintaining said desired tension.

15. (Currently Amended) A variable drive ratio belt system for use in a cooling system comprising:

a variable pitch crankshaft pulley,

a variable pitch water pump pulley, and

a drive belt coupled to said variable pitch crankshaft pulley[.];

said variable pitch crankshaft pulley having a first crankshaft pulley half and a second crankshaft pulley half held together at a first distance by a crankshaft pulley spring and said variable pitch water pump pulley having a first water pump pulley half and a second water pump pulley half held apart at a second distance by a water pump pulley spring;

said first crankshaft pulley half having a first inner sloping surface and said second crankshaft pulley half having a second inner sloping surface such that said drive belt rests upon a portion of said first inner sloping surface and said second inner sloping surface defined by said first distance; and

said first water pump pulley half having a third inner sloping surface and said second water pump pulley half having a fourth inner sloping surface such that said drive belt rests upon a portion of said third inner sloping surface and said fourth inner sloping surface defined by said second distance.

16. (Cancelled)

17. (Cancelled)

18. (Cancelled)

19. (Cancelled)

20. (Currently Amended) The variable drive ratio belt system of claim ~~16~~ 15, wherein said second distance decreases as a function of an increased drive belt rotational speed to decrease a drive belt diameter of said water pump pulley; and

wherein said second distance increases as a function of decreased drive belt rotational speed to increase a drive belt diameter of said water pump pulley.

21. (New) A cooling system comprising:

an engine crankshaft;

a water pump having at least one impeller; and

a variable drive ratio belt system coupled between said engine crankshaft and said water pump, said variable drive ratio belt system having a variable pitch crankshaft pulley coupled to said engine crankshaft, a variable pitch water pump pulley coupled to said water pump, and a drive belt coupled to said variable pitch crankshaft pulley and said variable pitch water pump pulley[.];

said variable pitch crankshaft pulley having a first crankshaft pulley half and a second crankshaft pulley half held together at a first distance by a crankshaft pulley spring;

said variable pitch water pump pulley having a first water pump pulley half and a second water pump pulley half held apart at a second distance by a water pump pulley spring;

said first crankshaft pulley half having a first inner sloping surface and said second crankshaft pulley half having a second inner sloping surface such that said drive belt rests upon a portion of said first inner sloping surface and said second inner sloping surface defined by said first distance;

said first water pump pulley half having a third inner sloping surface and wherein said second water pump pulley half having a fourth inner sloping surface, wherein said drive belt rests upon a portion of said third inner sloping surface and said fourth inner sloping surface defined by said second distance;

wherein said second distance decreases as a function of increased drive belt rotational speed and increases as a function of decreased drive belt rotational speed;

wherein the increase of said second distance decreases a water pump belt diameter of said drive belt; and

wherein the decrease of said second distance increases a water pump belt diameter of said drive belt.

22. (New) A method for preventing pump cavitation of a belt driven water pump having a plurality of impellers, said impellers rotating to pump coolant to an engine block, the method comprising:

coupling a variable pitch crankshaft pulley to an engine crankshaft,

coupling a variable pitch water pump pulley to the water pump; and

coupling a drive belt under tension to said variable pitch crankshaft pulley and to said variable pitch water pump pulley;

wherein coupling a drive belt comprises coupling a drive belt to a variable pitch crankshaft pulley such that said drive belt is coupled to a first inner sloping surface of each of a pair of crankshaft pulley halves separated by a first distance and coupling said drive belt at a desired tension to a variable pitch water pump pulley such that said drive belt is coupled a second inner sloping surface of a pair of water pump pulley halves separated by a second distance;

wherein each of said crankshaft pulley halves is maintained together at said first distance by a crankshaft spring and wherein each of said water pump pulley halves is forced apart at said second distance by a water pump pulley spring; and

wherein an increase in the rotational speed of said drive belt causes said first distance to increase and said second distance to decrease while maintaining said desired tension.

23. (New) A variable drive ratio belt system for use in a cooling system comprising:

a variable pitch crankshaft pulley,

a variable pitch water pump pulley, and

a drive belt coupled to said variable pitch crankshaft pulley;

said variable pitch crankshaft pulley having a first crankshaft pulley half and a second crankshaft pulley half held together at a first distance by a crankshaft pulley spring;

said variable pitch water pump pulley having a first water pump pulley half and a second water pump pulley half held apart at a second distance by a water pump pulley spring;

said first crankshaft pulley half having an first inner sloping surface and wherein said second crankshaft pulley half having a second inner sloping surface such that said drive belt rests upon a portion of said first inner sloping surface and said second inner sloping surface defined by said first distance;

said first water pump pulley half having an third inner sloping surface and wherein said second water pump pulley half having a fourth inner sloping surface, wherein said drive belt rests upon a portion of said third inner sloping surface and said fourth inner sloping surface defined by said second distance; and

wherein said second distance decreases as a function of an increased drive belt rotational speed to decrease a drive belt diameter of said water pump pulley, and wherein said second distance increases as a function of decreased drive belt rotational speed to increase a drive belt diameter of said water pump pulley.